

dentsu TRACKING

Dentsu Aegis Network

EU SECONDARY REPOSITORY SPECIFICATIONS CHANGES FROM VERSION 1.4.2 TO 1.4.3

This document details the changes in the List of Specifications and Data Dictionary from version 1.4.2 to version 1.4.3 for the EU Secondary and Router.

Summary of changes

Date	Version	Done by	Comment
31.10.2020	1.0	Dentsu Aegis Network	

Publication

Date	Version	Submitted to
31.10.2020	1.0	

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1 Introduction

1.1 Purpose

This document describes the changes proposed to the Data Dictionary version 1.4.2 and the List of Specifications version 1.4.2.

1.2 Type of updates

In order to provide a better understanding of the proposed updates, each change is categorized as following.

- **Cosmetic:** the change corrects typo or wording elements without changing the feature purpose
- **Technical:** The change completes the current feature or correct minor omissions.
- **Functional:** the change adds or modifies the initial feature.

1.3 Summary of changes

This document update contains the change in the country list to prepare for the Brexit related activities.

In addition to clarifications regarding the message sequence reporting including the handling of timeouts, this update consolidates the features introduced during the September 1st 2020 release.

1.4 Impact

The changes require development on IT systems for the following stakeholders.

Update	Secondary Repository and Router	ID Issuer	Primary Provider	Service Provider	Economic Operator Manufacturer / Importer	Economic Operator Distributor / Retail Outlet
XI country codes	X	X	X	X	X	X
Optional LDI Lookup Dispatch Interface					X	
Optional Checksum in acknowledgement	X			X	X	X
Primary to secondary hard validation	X		X			
System Reception Time	X		X			
Secondary repository special processing of technical historical data	X					

2 List Of Specifications 1.4.3 Updates

2.1 [Functional] System Reception Time.

Section: "5.2.6 System Reception Timestamp"

Description of the change: In some cases, the manufacturer systems can generate burst of messages. A number of messages can be produced during the same second and therefore will have the same EventTime and the same MessageTimeLong.

In order to implement efficiently the sequence validation controls, the System Reception_Time at a millisecond precision is defined.

The Reception_Time will be recorded and added by the Primary repository and Router.

2.2 [Clerical] Clarification of message acknowledgement and timeout handling.

Section: "5.2.8 Message response"

Description of the change: clarification of the event acknowledgment and timeout handling.

Message response

A message transmission corresponds to a message request performed by a sender system and a message response provided by the destination system back to the sender system.

The Message response contains and http status and the body of the message response.

2.2.1.1 Successful response or event acknowledgment

As per the Implementing Regulation, A message or event is considered reported upon the reception of the acknowledgement message (successful) transmitted back by the destination system.

The http status for the message positive response without any warning are 200 and 202.

A warning (http status 299) is considered as a successful response.

2.2.1.2 Negative response

The destination system is providing with a negative response if the reported event is not meeting the technical specifications.

Negative response http status is in the range of 400-499 and 500-599.

2.2.1.3 Timeout

The destination system did not produce a response within the time that the sender system was prepared to wait. The sender system MAY repeat the request without modifications at any later time.

The absence of response (or the http timeout response) indicates that the message is NOT acknowledged.

2.2.1.4 Timeout handling

In case of a timeout for a certain request, the sender system should retransmit the original message (identical payload).

If the sender system changes the original message (by updating the Message Time Long for example), the receiving system will consider the message as a different message.

2.3 [Clerical] Message Sequence.

Section: "5.2.13 Message Sequence"

Description of the change: clarification on the sequence reporting.

Message sequence must be respected as per regulation.

The primary repository must report the messages reported by the manufacturer in the same sequence. The reporting of messages to the secondary repository is completed upon reception of an acknowledgement message by the Secondary repository.

Note: If the primary repository reports two messages affecting the same group of UIs without waiting for the acknowledgment from the Secondary repository, both messages are considered to be reported simultaneously and NOT in sequence. By "affecting the same group of UIs" we mean either explicitly mentioned UIs between the messages or implicitly calculated UIs based on previous messages (i.e. hierarchy related UIs).

2.4 [Functional] Primary to secondary hard validation.

Section: "8.1 Overview"

Description of the change: Update the validation response between primary and secondary repository.

Validation is the process to accept or reject an incoming message.

Upon the reception of reported events on UI, a certain number of calculated information called metadata is computed and managed internally on the Secondary repository and Router. The UI metadata consists of

- The UI state information (indicating if the UI is in stock in a location, in transit and other)
- The UI Location FID (current location or last known location)
- The UI Aggregation context (if the UI is part of an aggregation)
- The UI Event history

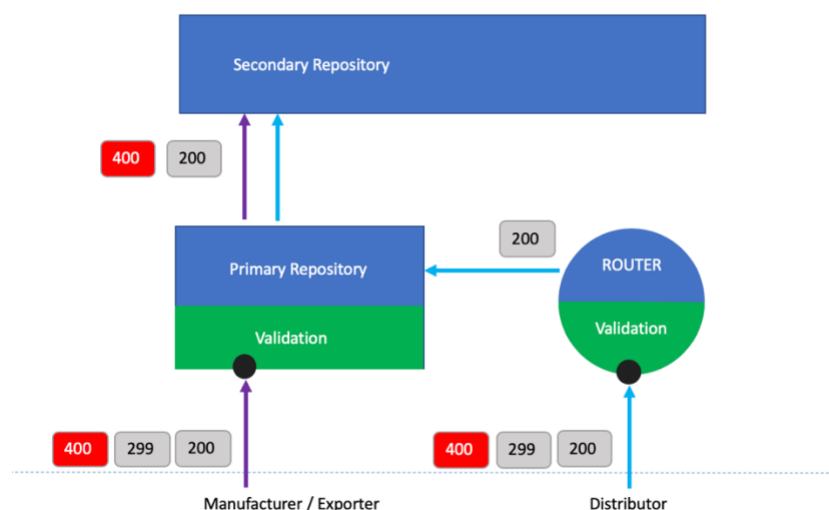
This metadata is internally used by the Secondary repository and the Router to perform the validation in real time and allows the system to meet the response time regulatory SLA.

Once the event is validated and accepted by the router or the secondary repository, the metadata for UIs are updated.

2.4.1 Principle: Duplication of validation

The complete traceability system should be considered as one system and the validation is performed at the first component of the system.

- Messages processed by the Router and transmitted to the Primary repository, should not be validated at the Primary repository level.
- Messages processed by the Primary repository and forwarded to the Secondary repository, is validated in order to ensure internal data integrity between systems.



2.4.1.1 Secondary to Primary Feedback

The Secondary repository performs the full validation (technical and business validation) all messages from the different primary repositories as described in the list of Specification.

The information provided by the primary repository is used to update the internal state of the different UI. The states are then used during the validation enforcement on the router.

The Secondary repository is running all the validation in order to confirm the coherence of the state changes.

In case the secondary validation process returns a negative response, the secondary repository will reject the message (http status 400).

The Meta data associated with the UI is not updated if the message is rejected (error 400).

If a message is rejected by the secondary repository, the primary repository can retransmit the same message (same payload and same recallcode) as an attempt to get it accepted.

2.5 [Functional] EOID FID MID Validation on Primary repository.

Section: "8.8 Validation Responsibility."

Description of the change: Adding the EOID FID and MID validation checks. Update the table with the HTTP responses

Validation Responsibility

	Primary Repository Error http status for EO	Router Error http status for EO	Secondary Repository Error http status for Primary
Technical validation			
VAL_SEC_HASH	400	400	400
VAL_SEC_TOKEN	401	401	401
VAL_MSG_JSON	400	400	400
VAL_MSG_XML	400	400	400
VAL_MSG_TYPE	400	400	400
VAL_FIE_MAN	400	400	400
VAL_FIE_FORMAT	400	400	400
VAL_FIE_REF	400	400	400
VAL_MSG_DUPLICATE	400	400	400
VAL_MSG_CODE_DUPLICATE	400		400
Business rule validation			
VAL_UI_MULT_MSG	400	400	400
VAL_UI_EXIST_APP	400		400
VAL_UI_DUPLICATE_APP	400		400
VAL_UI_FID_APP	400		400
VAL_UI_EXIST_UPUI	400	400	400
VAL_UI_EXIST_AUI	400	400	400
VAL_UI_EXIST_UPUI_SEQ	400	400	400
VAL_UI_EXIST_AUI_SEQ	400	400	400
VAL_UI_EXPIRY	400		400
VAL_UI_ORD_REACTIVATION	400	400	400
VAL_UI_ORD_DEACTIVATED	400	400	400
VAL_UI_ORD_AGG_MULT	400	400	400
VAL_UI_ORD_DISAGG	400	400	400
VAL_UI_ORD_IMPLDISAGG	400	400	400
VAL_UI_ORD_AGG_FID	400	400	400
VAL_UI_ORD_ARRIVAL	400	400	400
VAL_UI_ORD_ARRIVAL_RETURN	400	400	400
VAL_UI_ORD_DISPATCH	400	400	400
VAL_EVT_24H	299	299	
VAL_EVT_TIME	299	299	
VAL_ENT_EXIST_EOID	400	400	400
VAL_ENT_EXIST_FID	400	400	400
VAL_ENT_EXIST_MID	400	400	400
VAL_ENT_ACTIVE_EOID	400	400	400
VAL_ENT_ACTIVE_FID	400	400	400
VAL_ENT_ACTIVE_MID	400	400	400
VAL_ENT_REL_EOID_FID		400	400

VAL_ENT_REL_FID_MID		400	400
VAL_RECALL_EXIST	400	400	400
VAL_RECALL_LAST	400	400	400

2.6 [Functional] Secondary repository special processing of technical historical data.

Section: "8.8 Secondary repository special processing of technical historical data."

Description of the change: In some exceptional cases, if the primary repositories fail to report some events, the secondary validation will prevent the primary to report these events a posteriori.

The following edge cases have been identified.

- MAINT_01: Repacking scenario
- MAINT_02: Historical Transloading scenario
- MAINT_03: Arrival before Deactivation

In order to allow the secondary to be a copy of the primary repositories, the secondary repository will perform a limited update of the meta data.

Only the event list will be updated

The metadata used for the validation (state and location) will not be updated in these specific cases.

The secondary will add specific audit trail during the processing of these specific cases.

The secondary will add specific information to the event allowing the competent authority to be informed of this specific processing.

Note that any other cases not exactly matching these scenarii will be rejected. (http status 400)

The primary repository will receive a successful answer (http status 202) and will not have to resend the message.

2.6.1 MAINT_01: Repacking scenario

The initial packing process for a certain aUI corresponds to the reporting of an Aggregation (EPA 3.2) event.

The repacking process consists of an explicit Disaggregation (EUD 3.6) event followed by a new Aggregation (EPA 3.2) event.

In unlikely event of an issue in the reporting of the original aggregation and disaggregation event, the final aggregation event will be processed by the secondary repository.

MSG Sequence	MSG Type	UIDs	Primary ACK	Secondary ACK	Comments
1	EPA1 (3.2)	aUI	202	TIMEOUT	Message is not transmitted to Secondary

					due to technical reasons
2	EUD (3.6)	Same aUI	202	TIMEOUT	Message is not transmitted to Secondary due to technical reasons
3	EPA 2 (3.2)	Same aUI	202	202	

Message supported:

- aggregation message (EPA),
- disaggregation message (EUD).

Controls

- Messages must have been rejected by the regular endpoint.
- Control on the Existence of the aUI
- Control on the Reception Time or Message Time Long

2.6.2 MAINT_02: Historical Transloading scenario

ETL message

MSG Sequence	MSG Type	UIDs	Primary ACK	Secondary ACK	Comments
1	EDP	Any	202	202	
2	ETL	Same as in EDP	202	TIMEOUT	Message is not transmitted to Secondary due to technical reasons
3	ERP	Same as in EDP	202	202	

Message supported:

- Transloading message (ETL 3.5),

Controls.

- Control on the MessageTimeLong that ETL was sent after an EDP (3.3)
- Control on the MessageTimeLong that ETL was sent before an ERP (3.4)

2.6.3 MAINT_03: Arrival before Deactivation

MSG Sequence	MSG Type	UIDs	Primary ACK	Secondary ACK	Comments
1	EDP (3.3)	Any	202	202	
2	ERP (3.4)		202	TIMEOUT	Message is not transmitted to Secondary due to technical reasons
3	IDA (2.3)		202	202	

Message supported:

- Arrival message (ERP 3.4)

3 Data Dictionary 1.4.3 Updates

3.1 [Technical] Add Time(ms) in DataTypes

Section: "2.1 Data Types"

Description of the change: Add the millisecond precision timestamp.

Time(ms)	Time(ms) format format : yyyy-MM-ddTHH:mm:ss.fffZ	E.g '2020-08-13T16:01:34.477Z'
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3.2 [Technical] Add XI ISO country code definition

Section: "2.6.1 Country Codes"

Description of the change: In order to prepare for the Brexit, the XI country code is added to the list of supported countries.

Action: Add XI in the list of country codes

XI	Northern Ireland
----	------------------

3.3 [Clerical] update the data type for the upUI field from upUI(s) to upUI(L) without timestamp

Section: "3.4.2 IRU to report the issuance of serial numbers at unit package level"

Description of the change: update the data type for the upUI field from upUI(s) to upUI(L) without timestamp.

request for reporting the issuance of serial numbers at unit packet level – request					
Field	Description	Data Type	Cardinality	Priority	Values
upUI	List of unit packet level UI issued by the ID Issuer.	upUI(L) without timestamp	M	M	

3.4 [Technical] Add Reception Time

Section: "2.6.1 Basic information block concerning the request"

Description of the change: add the reception time to the basic information block.

Basic information block concerning the request - schema					
Field	Description	Data Type	Cardinality	Priority	Values
Reception_Time	System reception Time added by the Router or the Primary Repository	Time(ms)	S	M for messages transmitted by the Router (and Primary for wards from Router)	

Note 1: The reception Time is added by the entry point traceability system (Router or primary repository). The reception Time provided by the router to the primary repositories should be maintained and the primary repositories should accept the field and forward it to the secondary repository.

3.5 [Technical] LDI Lookup Dispatch Interface

Section: "3.14.1 LDI Lookup Dispatch Interface"

Description of the change: Provide the manufacturer the ability to check the validity of the final dispatch messages (when the subsequent arrival message is expected to be sent to the router). Ensuring the successful reception of the goods by the distributors.

3.5.1 LDI Lookup Dispatch Interface

3.5.1.1 Context

Provide the manufacturer the ability to check the validity of the final dispatch messages (when the subsequent arrival message is expected to be sent to the router). Ensuring the successful reception of the goods by the distributors.

3.5.1.2 Approach

The Recallcode validation.

The Manufacturer will be able to

- Retrieve the **status of the dispatch** on the secondary repository. Allowing the confirmation that the primary has processed the dispatch message and transmitted it successfully to the Secondary repository.
- Confirm the **arrival status** at the distributor side by "simulating" the arrival process and provide the router response.

3.5.1.3 Response information

The Traceability response to the manufacturer request over the dispatch

3.5.1.3.1 Dispatch status

	Description
0	The recallcode of the dispatch message (3.3) is not present in the Secondary repository
1	The recallcode of the dispatch message (3.3) is present in the Secondary repository and has been successfully processed.

3.5.1.3.2 Arrival status

The system will execute the reception validation controls.

The result of the validation controls will be provided in the arrival status.

3.5.1.4 Daily Limit

The limit per manufacturer is set to 30 000 calls per day.

3.5.1.5 Description of the fields

Application and aggregation envelop event					
Field	Description	Data Type	Cardinality	Priority	Values
BasicInfo_Req	Block of basic information elements	Component << Basic Information Request >>	S	M	Message_Type = LDI

Message_Time_long	Message sending Time	Time(L)	S	M	
Dispatch_Code	Dispatch RecallCode		S	M	
Dispatch_EOID	EOID		S	M	

3.5.1.6 Response:

upUI application event – response					
Field	Description	Data Type	Cardinality	Priority	Values
BasicInfo_Resp	Block of basic information elements	Component << Basic Information Response >>	S	M	Message_Type = LDI
Validation_Time	Validation Timestamp		S	M	
Dispatch_Code	Dispatch RecallCode		S	M	
Dispatch_Status			S	M	
Arrival_Status	Response of the simulated arrival related to the dispatch				

3.5.1.7 Request sample

```
{
  "Message_Type": "LDI",
  "Code": null,
  "Dispatch_Code": "873345b2-882f-4064-91f0-90669b46c30a",
  "Dispatch_EOID": "AAAAAAA",
  "Message_Time_Long": "2019-03-20T14:16:45Z"
}
```

3.5.1.8 Successful response sample

HTTP Status 200

```
{
  "Code": "873345b2-882f-4064-91f0-90669b46c30a",
  "Message_Type": "LDI",
  "Dispatch_Code": "873345b2-882f-4064-91f0-90669b46c30a",
  "Validation_Time": "2019-03-20T14:16:45Z",
  "Dispatch_Status": 1,
  "Arrival_Status": {
    "Error": false,
    "Errors": null
  },
  "Error": false,
  "Errors": null,
  "Checksum": "G6HF5H"
}
```

3.5.1.9 Error response sample

HTTP status		
<< Common response code >>		
400	FAILED_VALIDATION	In case the maximum number of requests is reached

3.6 [Technical] Optional Checksum in acknowledgement

Description of the change: In order to allow EO to request the additional check sum will reflect the number of unit-level unique identifiers concerned with a given acknowledgement, an optional information request field is added to the messages.

This checksum feature will only be available on the Router endpoint.

The primary repository will not support the checksum feature.

Basic information block concerning the response - schema					
Field	Description	Data Type	Cardinality	Priority	Values
Information	Indicates the request of additional optional information	Boolean	S	O	0 - No 1- Yes

This optional field is supported on the following requests

- EPA – (3.2) Application of aggregated level UIs on aggregated packaging
- EDP – (3.3) Dispatch of tobacco products from a facility
- ERP – (3.4) Arrival of tobacco products at a facility
- ETL – (3.5) Trans-loading
- EVR – (3.7) Report the delivery carried out with a vending van to retail outlet